

Orita et al.

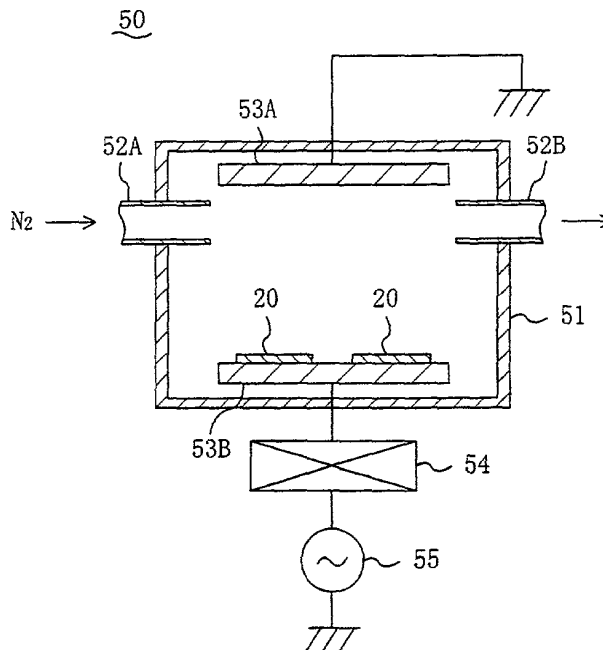
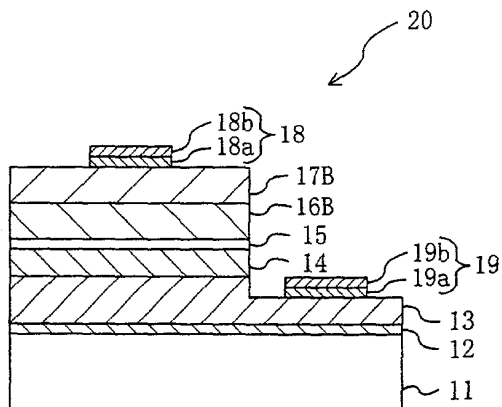
[45] **Date of Patent:** **Sep. 12, 2000**

- U.S. PATENT DOCUMENTS

5,874,320 2/1999 Shih et al. ,

First, n-type contact layer of GaN, n-type cladding layer of AlGaN, active layer of InGaN, first Mg-doped layer of AlGaN and second Mg-doped layer of GaN are grown in this order over a sapphire substrate. Thereafter, the substrate, including the second Mg-doped layer, is exposed to nitrogen plasma for about 40 minutes. As a result, Mg, which has been introduced into the first and second Mg-doped layers, is activated as an acceptor. Thus, p-type cladding layer and p-type contact layer with low resistance and excellent crystallinity can be formed out of the first and second Mg-doped layers, respectively.

15 Claims, 9 Drawing Sheets



REPORT